



A Letter From the Editor

With summer in full swing, we hope that you have taken the opportunity to enjoy some fun in the sun. As most people can surely relate to, the summer is usually a very busy time for us, and this year has been no different, with several noteworthy projects moving towards completion as well as numerous conferences and pilot trials. We look forward to sharing these with you and getting you up to speed on the latest news around the MIEX[®] Technology.

We are excited to report that the largest MIEX[®] System in the U.S. to date is proceeding into construction at St. Cloud, FL. Also, the construction of the High Rate MAGNAPAK[™] System to be installed in Cedar Key, FL is well underway, marking the first High Rate installation in the U.S. Read on for more information on these projects as well as articles on trials performed in Yankeetown, FL and Mobile, AL.

On another note, the AWWA and OpFlow Journals will be featuring MIEX[®] Installations located in California and Colorado in the coming months. So look for these to learn more about how the MIEX[®] Process is working to keep these plants in compliance with the EPA Disinfection By-Product Regulations.

Our conference schedule this summer has been particularly busy, highlighted by the AWWA Annual Conference (2006 ACE) in San Antonio June 11-14. At the conference we featured new process advancements and full-scale treatment results that generated a lot of interest in new potential MIEX[®] applications.

We are now looking forward to exhibiting at the Water Quality Technology Conference (WQTC) November 5-9 that is taking place in Denver, CO this year. We are preparing for several special events surrounding the conference. Be sure to check out the details in the WQTC article.

We hope you enjoy this edition of the MIEX[®]PRESS newsletter. And as always, feel free to contact me with any questions regarding the featured articles.

What's Inside

- ◆ Largest US Installation
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- ◆ Yankeetown Trial

Sincerely,

Stephanie Schnider
www.miexresin.com

Groundbreaking for Largest US MIEX[®] Installation

A groundbreaking ceremony was held on July 18 in the city of St. Cloud, Florida for what will be the largest MIEX[®] system to be built in the U.S. to date. A contract has been awarded to Wharton-Smith by the City for construction of a 9-MGD plant (expandable to 12MGD), which is expected to be operating by October 2007. **Jones Edmunds & Associates, Inc.** of Tampa, Florida is the engineer who designed the plant and will be the project manager for the installation. This is a completely new

water treatment plant for the City of St. Cloud and has been designed for sulfide removal to improve taste and odor of the water supply. The plant will consist of MIEX[®] treatment for TOC reduction and preliminary sulfide removal followed by deep bubble air stripping for sulfide polishing. This treatment process was selected following a trial conducted in June/July 2004. The trial results demonstrated that THM and HAA concentrations of the

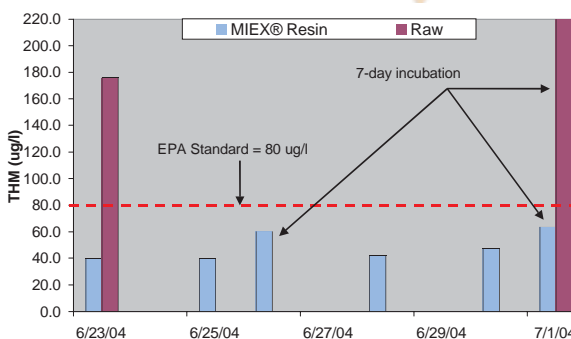


Figure 1: THM Reduction during MIEX[®] Trial

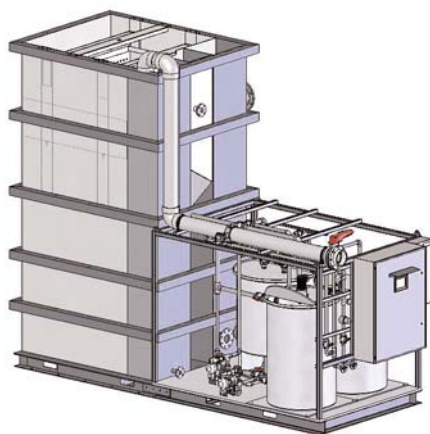


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First U.S. High Rate System Under Construction for Cedar Key, Florida

An order was received in April from the Cedar Key Water & Sewer District (District) for a 250gpm High Rate MAGNAPAK[™] system following the successful trial carried out in January-February 2006. This will be the first High-Rate MIEX[®] system to be installed in the U.S. The High-Rate system was selected by the District to bring its water treatment plant into compliance with the EPA DBP Standards following trials with a number of technologies including enhanced coagulation followed by ultrafiltration and chlorine dioxide.

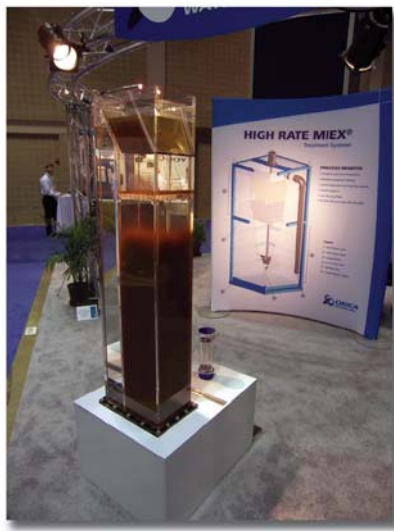


High Rate MAGNAPAK[™] System

The MIEX[®] process was the only technology tested that was successful in achieving the EPA DBP limits, the results of which were reported in our April Newsletter. The MAGNAPAK[™] system will be installed at the existing lime softening plant where raw water consists of ground water that is under the influence of surface water. The MAGNAPAK[™] system is a prefabricated, skid-mounted unit allowing for fast installation and is scheduled to start producing water for the District in September 2006.

2006 ACE in San Antonio, TX

The much anticipated Annual Conference in San Antonio has come and gone, reinforcing the momentum building for the MIEX[®] technology especially in regards to the most recent process advancements and the treatment results of full-scale MIEX[®] Installations in the U.S.



was a working model of our most recent process advancement—the High Rate MAGNAPAK[™] System, where contacting and settling occur in a single vessel as opposed to two separate vessels in the conventional configuration, thus allowing for a smaller installation footprint.

The main attraction of the new 20x20 foot booth

2006 WQTC Comes to Denver

Watercare Booth # 415

The upcoming 2006 WQTC Conference will be held in Denver, Colorado and we are excited to welcome the delegation to our home state. With a 10x20 space reserved at Booth #415, we look forward to catching up with everyone at the show.

MIEX[®] Technical Papers

The official program has not yet been released, but there are at least four papers on the MIEX[®] Process that are to be presented during the Tuesday morning session (TUES1, Series #1-3 & 7). Be sure to check the final schedule at the AWWA website in late August for additional papers on MIEX[®] (www.awwa.org).

You're invited!

We will be sponsoring a hospitality function Sunday, November 5th from 6 to 8pm to welcome all attendees to the area. Join us right after the show for drinks, appetizers, and entertainment. Details will follow at a later date, but be sure to set that time aside and let us give you a taste of true Coloradan hospitality.

MAGNAPAK[™] Site Visit

And last but not least, at the end of the conference, we'll be hosting a site visit of our MAGNAPAK[™] System at Big Elk Meadows, CO. If you're interested in attending, email Stephanie.Schnider@orica.com or call us at 303-268-5243.

Impressive treatment results & cost benefits demonstrated at Mobile, AL pilot

Over the last several years, the Mobile Area Water & Sewer System (MAWSS) has been investigating treatment strategies to allow reliable compliance with EPA disinfection by product (DBP) standards for their two water treatment plants. Through this investigation they have set a personal effluent TOC limit of 1.2 mg/L, which is more stringent than the EPA treatment requirement. The two most promising treatment strategies are as follows:

1. Chlorine dioxide pre-disinfection followed by enhanced coagulation and large doses of powdered activated carbon (PAC), or
2. Pretreatment with MIEX[®] DOC Resin followed by downstream chemical reductions.

During the spring of 2006, MAWSS performed a side-by-side study to investigate these options. A 25-gpm MIEX[®] pilot trailer was set up on the raw water source at the H.E. Meyers filtration plant, while chlorine dioxide, PAC and enhanced coagulation were being utilized for treatment in the full-scale plant.

Operations Manager, Joe Pitt, and staff oversaw the automated MIEX[®] pilot unit while operator, Gerald Pipkins, performed nearly 100 jar test evaluations to compare the two treatment options. Effluent water from the MIEX[®] pilot unit was coagulated in jars and compared to jar test results simulating the full-scale plant and to settled effluent water from the plant.

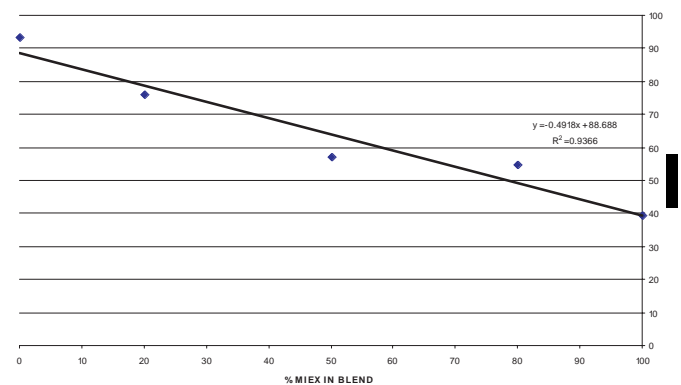
The following doses were determined to be the best possible conditions for each treatment scenario:

	PAC	MIEX [®]
Chlorine Dioxide, mg/L	0.5	0
Aluminum Sulfate, mg/L	80	20
PAC, mg/L	35	0
Lime, mg/L	30	7

Both treatment scenarios were capable of meeting the self-imposed TOC limit of 1.2 mg/L, with the MIEX[®] Treated water removing nearly 10% more TOC than the chlorine dioxide/PAC/enhanced coagulation treatment option. Samples were incubated at 25°C and held for seven days prior to TTHM analysis.

	PAC	MIEX [®]	Actual Plant
TOC, mg/L	1.08	0.76	0.99
TTHM, µg/L	44.9	35.3	50.0

Should MAWSS proceed with installation of a MIEX[®] System at the H.E. Meyers facility, it is likely that the MIEX[®] System will be operated on a percent-as-needed basis. To simulate blended treatment, batch samples were tested with varying amounts of MIEX[®] pre-treated water. This figure shows that with as little as



18% MIEX[®] Treatment the TTHM concentration is still within acceptable EPA limits (80 µg/L).

Implementing a MIEX[®] System at 50% of MAWSS can result in a reduction of \$62/MG in chemical cost while producing higher water quality.

MAGNAPAK[™] & MIEX[®] Installations to be featured in OpFlow & AWWA Journals

Be sure to flip through your August issue of OpFlow to read about the recent MAGNAPAK[™] packaged system installation at Big Elk Meadows, CO, commissioned earlier this year. The article covers the entire project from initial evaluation to full implementation and commissioning.

Also, the 1MGD MIEX[®] Installation at Green Valley WTP in Vallejo, CA will be featured in an AWWA Journal Field Report in October, so look for that in the coming months.

Yankeetown Trial Continues to Showcase Effectiveness of New High Rate MAGNAPAK[™] System

Yankeetown, FL recently piloted the MIEX[®] Process for a potential 300 gpm High Rate MAGNAPAK[™] System to determine if it could reduce the formation of disinfection by-products (DBPs) in the distribution system to meet the new EPA standards.

The Yankeetown WTP currently treats raw water received from nearby wells. The raw water is aerated prior to flowing to a clearwell. Water from the clearwell is then pumped to a storage tank. Prior to entering the distribution system, the water is chlorinated then filtered.

Dissolved Organic Carbon (DOC) & TTHM and HAA5 Results

The High Rate MAGNAPAK[™] System alone consistently reduced the DOC from the raw water by over 57% from an average 3.93 mg/L to 1.69 mg/L. At regeneration

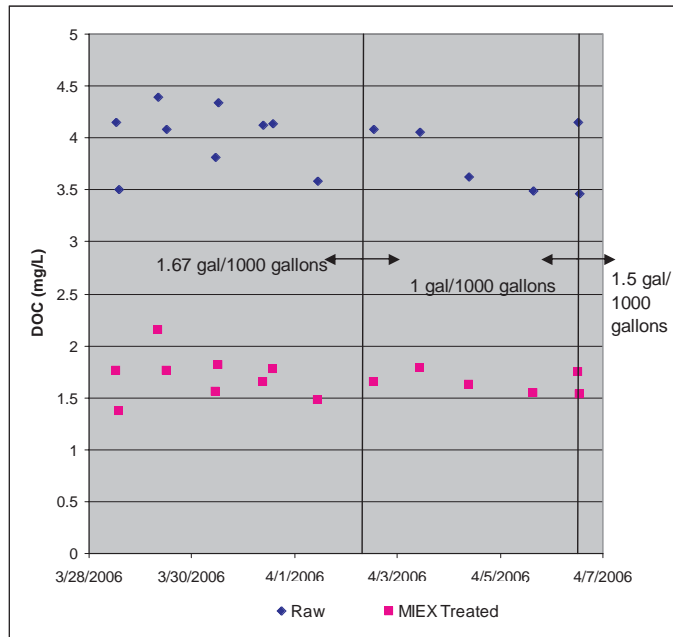
rates of 1 gallon/1000 gallons and 1.5 gallons/1000 gallons, average reductions of 57.5% and 56.5% were achieved respectively.

Average Simulated Distribution System (SDS) DBP reduction was 72% for TTHM (from 127 to 35 µg/L) and 86% for HAA5 (from 111 to 15 µg/L).

Conclusions

The DOC reductions achieved with the High Rate MAGNAPAK[™] System would allow Yankeetown to comfortably meet DBP standards for both TTHM and HAA5, with the additional benefit of a minimal contact time requirement of 3 minutes versus 15 minutes in a conventional system, thus allowing for a much smaller footprint.

Orica Watercare would like to thank **Robert Zammataro of Mittauer & Associates** for his assistance during this trial.



Groundbreaking (FROM PAGE 1)

raw water source pre-treated with MIEX[®] Resin could be reduced to well below EPA Standards after both 3 and 7-day incubation periods. The 7-day incubation period was used as a worst-case scenario for THM and HAA formation in the distribution system and the 3-day incubation period was used to determine THM and HAA formation under simu-

lated distribution system conditions (Figures 1 and 2). The trial also demonstrated that MIEX[®] Resin could reduce raw water sulfide levels by over 70%.

This will not only be the largest MIEX[®] installation but also the first system of concrete construction to be built in the US.

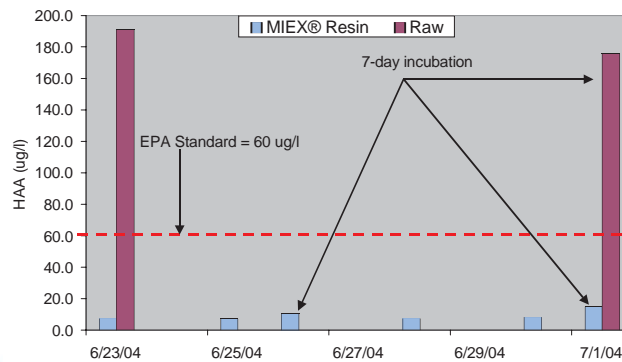


Figure 2: HAA Reduction during MIEX[®] Trial